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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/590,463	08/23/2006	Mats Annerfeldt	2005P02667WOUS	9725
22116 7590 06/02/2009 SIEMENS CORPORATION INTELLECTUAL PROPERTY DEPARTMENT 170 WOOD AVENUE SOUTH ISELIN, NJ 08830				
EXAMINER				
WIEHE, NATHANIEL EDWARD				
ART UNIT		PAPER NUMBER		
3745				
MAIL DATE		DELIVERY MODE		
06/02/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/590,463

**Applicant(s)**

ANNERFELDT ET AL.

**Examiner**

NATHANIEL WIEHE

**Art Unit**

3745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 August 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 22-41 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 22-41 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 23 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-85/86)  
Paper No(s)/Mail Date 06112008: 08232006  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

The information disclosure statements (IDS) submitted on 23 August 2006 and 11 June 2008 are noted. The submissions are in compliance with the provisions of 37 CFR 1.97 and 1.98. Accordingly, the information disclosure statements are being considered by the examiner.

### ***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: part channels 24' (paragraph [00041], line 3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

The disclosure is objected to because of the following informalities:

In paragraph [00038], line 6, "from 1,1 to 3 times" is unclear,

In paragraph [00039], line 5, "from 0,1\*b to 1\*b in order" is unclear,

In paragraph [00039], lines 6-7, "from 0,1\*b to 10\*b, thus" is unclear, and

In paragraph [00042], lines 3-4, "from 5°-60 to 0°." is unclear.

Appropriate correction is required.

***Claim Objections***

Claim 23 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 23 presents the manner in which the heights of the outlet, first and second channels are to be calculated. However, such measurements do not present any additional structure to the claims and therefore fails to further limit claim 22.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 30-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 30 recites the limitation "according to claim 30" in line 1. There is insufficient antecedent basis for this limitation in the claim. Specifically, the claim cannot depend from itself.

Claims 31-41 are rejected due to their dependence from claim 30.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 21-25 and 30-41, as far as they are definite, are rejected under 35 U.S.C. 102(b) as being anticipated by Moore (3,806,274). Moore discloses a blade for a gas turbine having an inner space is defined by a first, radially extending, pressure sidewall (17) and a second, radially extending, suction sidewall (18), an inlet area (13) arranged radially inward of the sidewalls, a top area opposite the inlet area (13) and at a radially outer end (12) of the first and second walls and an outlet area arranged toward the trailing edge (11) of the blade forming a passage for cooling fluid to flow from the inlet area to the outlet area. Moore includes a plurality of helical ribs (16) that extend from both the first wall (17) and the second wall (18) each substantially parallel along the respective walls and extending from the leading edge constituting the claimed plurality of first ribs and plurality of second ribs respectively. Further, the ribs (16) from each wall join at a singular point near the trailing edge that is coincident with the trailing edge passage ribs (X) that further include thickened portions (T) constituting reduced

flow area trailing edge outlet channels (21) (See Fig. 1' below). Since the trailing edge ribs (X) are formed at the juncture of the first and second sidewall ribs (16) they are construed as the portions of said first and second ribs in the "proximity of the trailing end". Also, these trailing edge ribs (X) form a common outlet channel for the first and second channels. The first side (17) ribs, in shadow in Fig. 1, extend along a first direction in proximity to the leading end that forms a first angle of inclination with respect to the rotary axis of the rotor. The second side (18) ribs, in solid lines in Fig. 1, extend along a third direction in proximity to the leading end forming a third angle of inclination with respect to the rotary axis of the rotor. The portions of the first and second ribs in proximity of the trailing end, i.e. those portions constituted by trailing edge ribs (X), extend in a second and fourth direction, respectively, that is inclined in relation to both the first and third directions, are equal to one another and are substantially parallel to the rotary axis. The first and third directions intersect each other and the third direction slopes from the leading end toward the rotary axis while the first direction slopes from the leading end away from the rotary axis. The ribs (16,X) extend over a leading zone and a trailing zone.

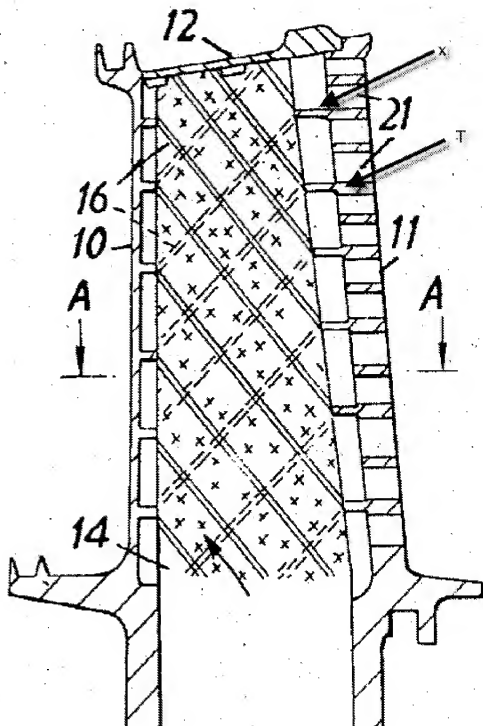


Fig. 1'

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moore (3,806,274) in view of Bregman et al. (6,382,907), hereinafter "Bregman". Moore discloses the invention substantially as claimed except for the use of ribs extending from the leading end to the trailing end along an essentially continuously curved path. Bregman discloses a cooling turbine blade (1) including a similar helical, intersecting pattern of ribs (13',13",14',14") to that of Moore. Although the ribs are only shown as being straight, Bregman indicates that the ribs may extend along a continuous path comprising a curve thereby providing improved flow efficiency. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the blade of Moore by utilizing ribs extending along a continuously curving path as taught by Bregman for the purpose of improving the flow efficiency of the cooling fluid.

***Prior Art***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The patent issued to Hall et al. discloses a hollow turbine blade having v-shaped ribs extending from both the suction and pressure sidewalls in an intersecting, offset pattern. The patent issued to Hook discloses a turbine blade having



suction and pressure sidewall ribs joining in the trailing edge and including a metering device. The patent issued to Liang discloses a trailing edge cooling arrangement including thickened portions at the intersection of the pressure and suction sidewall ribs.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHANIEL WIEHE whose telephone number is (571)272-8648. The examiner can normally be reached on Mon.-Thur. and alternate Fri., 7am-4:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Look can be reached on (571)272-4820. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/NATHAN WIEHE/  
Nathan Wiehe  
Examiner

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/Edward K. Look/  
Supervisory Patent Examiner, Art Unit 3745